

WHAT IS CLAIMED IS:

1. A multilayer piezoelectric actuator device comprising:

a multilayer structure including a plurality of piezoelectric elements and a plurality of internal electrodes, said piezoelectric elements and said internal electrodes being stacked in a stacking direction so that each of said internal electrodes is placed between adjacent ones of said internal electrodes;

a pair of external electrodes disposed on a side surface of said multilayer structure, said external electrodes being connected to adjacent ones of said internal electrodes, respectively; and

a pair of conductive members connected to said external electrodes, respectively, each of said conductive member being spaced from and faced to said side surface of the multilayer structure.

2. The multilayer piezoelectric actuator device according to claim 1, wherein each of said conductive members is made of a metal foil.

3. The multilayer piezoelectric actuator device according to claim 1, wherein said side surface of the multilayer structure has a pair of side surface portions opposite to each other in a direction perpendicular to said stacking direction, said external electrodes being fixed to said side surface portions, respectively.

4. The multilayer piezoelectric actuator device according to claim 3, wherein said internal electrodes are alternately exposed on said side surface portions and connected to said external electrodes, respectively.

5. The multilayer piezoelectric actuator device according to claim 1, wherein said conductive member has a function of a heat sink which promotes heat radiation.

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6. A multilayer piezoelectric actuator device comprising:

a multilayer structure including a plurality of piezoelectric elements and a plurality of internal electrodes, said piezoelectric elements and said internal electrodes being stacked in a stacking direction so that each of said internal electrodes is placed between adjacent ones of said internal electrodes;

a pair of external electrodes disposed on a side surface of said multilayer structure, said external electrodes being connected to adjacent ones of said internal electrodes, respectively; and

a pair of conductive members connected to said external electrodes, respectively, each of said conductive member being spaced from and faced to said side surface of the multilayer structure, said side surface of the multilayer structure having a pair of side surface portions opposite to each other in a direction perpendicular to said stacking direction, said external electrodes being fixed to said side surface portions, respectively, said internal electrodes being alternately exposed on said side surface portions and connected to said external electrodes, respectively, each of said internal electrodes having an end face which is substantially flush with one of said side surface portions and is retracted from another of said side surface portions.

7. A multilayer piezoelectric actuator device comprising:

a multilayer structure including a plurality of piezoelectric elements and a plurality of internal electrodes, said piezoelectric elements and said internal electrodes being stacked in a stacking direction so that each of said internal electrodes is placed between adjacent ones of said internal electrodes;

a pair of external electrodes disposed on a side surface of said multilayer structure, said external electrodes being connected to adjacent ones of said internal electrodes, respectively; and

a pair of conductive members connected to said external electrodes, respectively, each of said conductive member being spaced from and faced to

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said side surface of the multilayer structure, said side surface of the multilayer structure having a pair of side surface portions opposite to each other in a direction perpendicular to said stacking direction, said external electrodes being fixed to said side surface portions, respectively, said internal electrodes being alternately exposed on said side surface portions and connected to said external electrodes, respectively, each of said internal electrodes having an end face which is substantially flush with said side surface portions and covered with an insulator only at one of said side surface portions.